

MONTANA AERONAUTICS COMMISSION



Volume 17 No. 1

January, 1966

COMMISSIONER JUNGEMANN RESIGNS DUE TO OUT-OF-STATE PROMOTION



Commission Member Herb Jungemann recently received a promotion transfer with Western Airlines and has left Montana. Herb, representing the Air Carriers, was appointed to the Montana Aeronautics Commission, June, 1961 by the late Governor Nutter and served as Chairman for the fiscal year 1963-1964. He has been an active, and capable member of the Commission and con-

tributed a great deal through his ability and experience in aviation.

During his 21 years with Western Air Lines, Herb advanced from radio operator—to chief agent—to Billings Station Manager. Previous to joining Western Airlines, he served with the United States Navy in World War II—obtained his Bachelor of Music Degree and taught grade and high school music. Herb holds a private pilots license.

Herb's new position will be Manager of the Western Air Lines Reservation Office located in the Sahara Hotel, Phoenix, Arizona. His staff will consist of several chief agents and a number of reservation and secretarial personnel.

While in Billings—Herb was extremely active in community affairs. He was a member of the Chamber of Commerce, serving on the aviation committee—a director of the Kiwanis Club and advisor to the Board of Directors of the Montana District Lutheran Church, Missouri Synod. Herb, wife Verla and their three children leave an extensive group of friends and co-workers—all wishing them the very best in their new location and offering sincere congratulations to Herb on this new promotion.

Note: Mr. Sam Wells has taken the position of Manager of the Billings Western Airlines Station.

MARY JO JANEY ACCEPTS POSITION WITH CESSNA AIRCRAFT

Mary Jo Janey, Supervisor of Aviation Education for the Montana Aeronautics Commission for the past 5 years has accepted a position with the Cessna Aircraft Company in Wichita, Kansas.

Mary Jo was born and raised in West Virginia—attended Concord College at Athens and received her BA from the University at Miami, West Virginia. She later took additional work at Oxford, Ohio and Eastern Montana College. The summer of 1965 she worked on her Masters Degree at Montana State University and added a Multi Engine Rating to her Commercial License. Mary Jo belongs to the MPA, NPA, Ladies 99's, Zonta International, The National Education Association, and Montana Education Association.

Mary Jo joined the Montana Aeronautics Commission staff in January 1961 and worked jointly with the Department of Public Instruction and subject to the Department's educational policies. During this period Mary Jo received national recognition for her work in aerospace education for youth by being appointed to the Board of Directors of the National Aerospace Education Council

(Continued on Page 3, Col. 1)

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of the
MONTANA AERONAUTICS
COMMISSION**

**Box 1698
Helena, Montana**

Tim Babcock, Governor

Charles A. Lynch, Director

**Walter Hope, Chairman
Carl W. (Bill) Bell, Vice Chairman
Jack R. Hughes Secretary
Herb Jungemann, Member
E. B. Cogswell, Member
Clarence Anthony, Member
Gordon Hickman, Member**



DIRECTOR'S COLUMN



Charles A. Lynch

"SARDA FLEET"

All of you who were flying privately owned civil aircraft during the early '40's will, no doubt, vividly recall the rather eye-opening abruptness that grounded all civil aircraft in the United States very quickly after the bombing of Pearl Harbor. To all of us in the industry, at that time, it was an admitted fact that such security measures were necessary. I am sure most of us thought that the action was more necessary in highly populated coastal areas than it was here in the State of Montana. However, we were forced to admit that a policy covering the flight of civil aircraft would have to be applied on a national basis rather than an area or regional basis.

At any rate, we all woke up one morning to find out that even though we owned an aircraft with ample fuel aboard it was neither legal, proper, or safe to go flying around the country that particular morning.

Looking back on it now I realize that the process of getting civil aircraft legally airborne again to complete necessary federal contracts and to supply a needed link in the transportation system was a rather cum-

bersome and long, drawn out process. Nevertheless, the security control of civil aircraft was necessary.

The Director of the Montana Aeronautics Commission, on April 13, 1963, was commissioned by the Governor of this State as a member of the Civil Defense Advisory Council. Since that time we have further accepted the duties as Chief of the SARDA Plan under the office of Emergency Planning, as Chief of the Aviation Division of the Transportation Section of the overall Civil Defense Plan.

It is necessary, therefore, that from this date forward the State Aeronautics Department maintain a roster of all FAA registered aircraft owners of civil aircraft within the State of Montana. The SARDA Plan (State and Regional Defense Airlift) for the State of Montana is presently in the printing process. This booklet will be dispatched to every registered aircraft owner of record within the State of Montana.

The registration of aircraft in the State of Montana will be done on a voluntary, no-cost basis, by your State Aeronautics Commission in the near future.

Within the next few weeks and as soon as the SARDA Plan is available, brief registration forms, along with a copy of the SARDA Plan will be forwarded to all registered aircraft owners of record as of December 1, 1965. It is vitally important that this office maintain a record of all available civil aircraft and all available inventories of fuel supplies, which could conceivably

be put into operation within hours following any nuclear attack or extreme emergency on any part of this country.

Naturally, the information required by this registration applies strictly to the operational capabilities of your aircraft. Information needed will include the number of seats, the useful load, the total fuel capacity, the fuel use per hour of your particular aircraft. It will include the operational home base of the aircraft. As it is vital to the operation of civil aircraft during an emergency, and to the maintenance of permanent statistical records at state level, it will be extremely helpful if all aircraft owners will submit proper applications as soon as information and forms are made available to you.

(The State and Regional Defense Airlift registration card carries on the reverse side the agricultural aircraft registration application for this year's operation of all agricultural operators here in the State of Montana.)

FOR SALE: Aeronca Sprayer. 108 Lycoming—Belly tank—Metalized—Tank truck and trailer—Price \$2,500 takes everything. Contact: Morrison Flying Service, Helena. Phone 442-2190.

FOR SALE: 1955 PA 22—150 Super Custom—Full Panel—VHF. LF Rotating beacon—Elec. compass—Wheel pants. Excellent condition with all AD's on A/C and engine. Price \$4,200. Contact: Morrison Flying Service, Helena. Phone 442-2190.

FOR SALE—Aeronca—7 AC—New engine—Real clean. Contact Evald Larsen. Phone 765-1130, Plentywood, Montana.

FOR SALE: 1948 Stinson 108-3 Station Wagon—165 h.p.—250 hrs. SMOH—Full panel—New rubber—VHT 3. Write: G. E. Strong, P. O. Box 2602, Great Falls. Phone 454-1057 or 453-2519.

FOR SALE: Stinson 108 3 Station Wagon—12 Channel VHT 3—Beautiful white and green acrylic paint—Loaded—This airplane has everything—A very clean well equipped Stinson in perfect condition. Contact: J. V. Pauley, Miles City. Phone 232-2022.

SARDA FLEET				
STATE AND REGIONAL DEFENSE AIRLIFT REGISTRATION				
Name				
Mailing Address				
..... City		 County	 State	 ZIP
AIRCRAFT				
N No.	Make	Model	No. Seats	Useful Load
Engine	H. P.	Fuel Use Per Hr.	Fuel Capacity	
Airport Base		+S & R District	+SARDA Area	
			(+ Leave Blank)	(+ Leave Blank)
Signature of Registered Owner				

Example of Sarda Registration Card

JANEY. . . .

(Continued from Page 1)

and in 1965 was awarded the Frank C. Brewer Civil Air Patrol Award for her outstanding work in this field.



Mary Jo Janey

Mary Jo looks forward to her new position in the Cessna Research and Education Department—Dr. Leslie L. Thomason, Director. She will be working with the various womens' and educational groups and the job will entail a considerable amount of travel.

Mary Jo and Son, Mark, both expressed regret in leaving Montana and their friends. While we will miss them and the work that Mary Jo has capably carried on, we all wish her every success in her new position and happiness in their new home.

FEDERAL AVIATION AGENCY ITINERARY LISTING



Airport	Jan.	Feb.	March
Bozeman (Gallatin Field)	17		
Culbertson	2		
Glasgow	19		16
Glendive		16	
Great Falls (International)	6	10	10
Lewistown		22	
Miles City (Municipal)	13		24
Missoula	20	24	24
Sidney	12		23

Note: Provisions have been made to give private pilot written examinations ON AN APPOINTMENT BASIS ONLY at the following FAA Flight Service Stations:

Bozeman	Lewistown
Butte	Livingston
Cut Bank	Miles City
Dillon	Missoula

BRIEF SUBMITTED IN PACIFIC NW-SW SERVICE INVESTIGATION

By Charles A. Smith
Commission Attorney

On December 16th the Legal Department of the Montana Aeronautics Commission filed its brief to Examiner Ross I. Newmann of the Civil Aeronautics Board of Washington, D. C., in reference to the Pacific Northwest Southwest Service Investigation. This is a CAB investigation of the possible need for single-air carrier service between the Pacific Northwest and the Southwest. Fifteen domestic airlines filed applications to provide service. The Board's original order defined the Northwest as including the states of Washington; Oregon; Idaho; Wyoming; Utah; and that portion of Colorado northwest of Denver. The Southwest was defined as including the portion of Colorado southeast of Denver; New Mexico; Kansas; Oklahoma; Texas; Louisiana; and the cities of Kansas City and St. Louis, Missouri. However, the CAB permitted the Montana Aeronautics Commission to intervene as a formal party. At that part of the hearing, which was held in Denver, Colorado, the Commission presented testimony and evidence of the need for service between Montana and the Southwest. Additional hearings were held in Seattle, Washington; Houston, Texas; New Orleans, Louisiana; and Washington, D. C., and the MAC also appeared in Houston and Washington, D. C. The Commission actively participated in every stage of the proceeding after it was permitted to intervene by a CAB order made on January 14, 1965.

In its brief, the Montana Aeronautics Commission argued that the present service between Montana and the Southwest is inadequate, and outlined the evidence showing the community of interest between Montana and the Southwest area and the need for single-carrier, single-plane service. It was pointed out that Montana's principal need for air carrier transportation is caused by the very considerable traffic generated by the oil and petroleum industry in travelling between Montana and Calgary, Alberta; and the Southwest area, particularly the cities of Houston, Dallas, and San Antonio, Texas; Tulsa and Oklahoma City,

Oklahoma; and New Orleans, Louisiana. The brief also said that there was considerable community of interest and need for air carrier service between Montana and such points as Kansas City, Missouri, because of mutual livestock and agricultural interest. The Commission urged that improved service was also justified by the many tourists from the Southwest who travel to Montana, Glacier and Yellowstone Parks, each year for recreation.

The two airlines which could provide improved direct single-plane, single-carrier service between Montana and the Southwest as the result of an award of authority in this proceeding, are Western and Frontier. Although Northwest is an applicant, its proposal does not include direct service between Montana and the Southwest.

Montana has some reason to be optimistic because the Bureau of Operating Rights, a division of the CAB, on November 22, 1965, recommended to Examiner Newman that Montana's service needs to the Southwest be recognized. The Bureau of Operating Rights asked that Western Air Lines be authorized to provide the first single-carrier through-service between Idaho, Montana, and Wyoming and the Southwest cities of Dallas, Fort Worth, Houston and San Antonio.

Final Decision of the Civil Aeronautics Board cannot be expected for many months. Examiner Newmann will first make his recommended decision, which may be reviewed by the Civil Aeronautics Board either on its own motion or upon the petition of parties who are involved.

To illustrate the magnitude of this Civil Aeronautics Board investigation, the Montana Aeronautics Commission's brief was served upon more than 100 parties, which included not only airlines, but many communities and states.

(This news article is presented in lieu of my usual article "A Case In Point.")

DID YOU KNOW THAT

Alaskans fly from 20 to 40 times more than citizens of other states because more often than not they can't drive or take a train or bus to their destinations, there being relatively few roads and rail lines.

FAA INSPECTOR'S CORNER



With winter weather conditions and the short daylight hours, it is advisable to review safe flight practices and precautions which will prevent aircraft accidents resulting from disorientation and loss of control. The following are some of these basic steps:

(1) When flying at night or in reduced visibility, use your flight instruments.

(2) Maintain night currency if you intend to fly at night. Include cross-country and local operations at different airports.

(3) Study and become familiar with unique geographical conditions in areas in which you intend to operate.

(4) Check weather forecasts before departure, enroute, and at destination. Be alert for weather deterioration.

(5) Do not attempt VFR flight when there is a possibility of getting trapped in deteriorating weather.

Conclusion: You and only you have full knowledge of your limitations. Know these limitations and be guided by them.

* * *

ANGLE OF CLIMB

For many years a pattern of accidents has been established here in the West by pilots who fail to "out-climb the terrain". Why do pilots so often attempt operations obviously exceeding the capability of their airplanes? We wondered whether it might not be, at least partially, because they do not have an accurate mental picture of their true angle of climb. So we arbitrarily assigned a best-angle-of-climb airspeed of 60 mph to a "typical" light airplane, and assumed it would climb about 500 f.p.m. at that speed. A little work with a plotter made it apparent that the actual climb angle above the horizontal is in the neighborhood of five degrees (Figures of 80 mph and 800 fpm yielded about 6½°; 120 mph and 1800 fpm gave 10°).

These are pretty flat angles, and it doesn't take much of a rise in the terrain to exceed them. (The photo depicts an actual range of hills in



Montana with a 5° angle superimposed upon it.)

Most pilots today are familiar with the airplane handbook, and use it regularly to evaluate take-off situations. However, it is enroute that this problem usually develops and there aren't any figures handy to help us. The manufacturers don't include them because they never intended the best-angle speeds to be used for sustained operation—just to get you over the obstacle. We quote them here only because they **are** the best—at any other speed and rate of climb your airplane can maintain, the angle will be flatter! Even if the figures were available (corrected for altitude and temperature) where is the virtuoso who can say with confidence, "Four and one-half degrees climb is sufficient to clear the ridge before me and I have six degrees available; therefore I am safe."?

Now let's discuss some of the right ways to approach the problem. We won't discuss "bad air," lee-slope operation, etc.—these are worth a book by themselves! First, get up to where you can see over the ridge or pass before you tackle it. If the terrain beyond appears to be rising; that is, if you can see more of it as you fly along, you're going to clear the ridge. If it appears to be descending, if you see less and less of it as you progress, you're too low; make a climbing three-sixty and try it again. If you can't see anything but blue sky, forget the whole thing you're really short on altitude.

Don't let the "false horizon" fool you. The true horizon is somewhere near the base of the mountains, not

where they meet the sky. This illusion can lead you into flying in a slight climb attitude while thinking you are level. If you know where the horizon cuts your windshield in level cruising flight over flat terrain, that's where the **true** horizon is in the mountains. In a high-wing airplane, the bottom of the wing (again in level flight) is a good reference—it was pretty much parallel with the horizon in the flatlands.

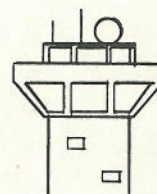
When in doubt, consult your "Senior Local Pilot." He'll be glad to share his hard-earned knowledge with you and often a word from him is worth a couple hours of trying it yourself.

Good Flying in Montana!

STATISTICS

61/37
61/37
64/22

	Accidents Total	Fatalities
1964 Total	61	37
'64 as of this date..	61	37
'65 as of this date..	64	22



TOWER

OPERATIONS

	November, 1965 Total Operations	Instrument Operations
Billings	7,994	878
Great Falls	6,453	755
Missoula	4,277	392
Helena	2,999	159

MEMORANDUM TO REGION ONE AIRCRAFT OPERATORS

For the past ten years, Region One patrol plane contracts have required a highwing, 4 place aircraft with a 220 hp engine and a useful load of 1,050 pounds. During the past year we have made a very close check on the useful load requirement and found that many of the planes were not able to meet the specification. In fact, many individuals, both contractors and Forest Service, were confused on how to determine useful load. In order to more clearly define what will be required, our 1966 contracts will use the term payload.

The definition of payload will be total weight of load that may be loaded in the airplane at one time for takeoff exclusive of the weight of full tanks of gas, oil, pilot, and communication navigational aids. Full tanks of gas are calculated to be a minimum of 55 gallons of fuel. Forest Service radios and parachutes will be considered part of the payload.

In order to fully utilize the seating capacity of the aircraft and safely transport three passengers with light luggage, the 1966 contracts will specify a payload of 550 pounds. This same specification will be required of aircraft signed up under our emergency agreement procedures.

The complete specifications and performance requirements will be:

1. The airplane furnished shall be of the highwing monoplane, 4-place (minimum) type, and shall have:

- A cruising speed of not less than 150 miles per hour.
- A landing speed not in excess of 60 miles per hour.
- A service ceiling of not less than 18,000 feet.
- A rate of climb of not less than 1,000 feet per minute (sea level performance rating).
- A cruising range of not less than 4 hours with reserve fuel.
- A payload capacity of not less than 550 pounds.
- An engine of not less than 230 hp.
- A power loading not greater than 13.0 pounds.

Tests and studies have shown the

highwing plane to give superior visibility in scouting going fires in mountainous terrain.

2. All airplanes furnished shall be properly bonded and shielded for the use of 2 way voice radio equipment, and shall be equipped with 2 way voice radio permitting reception of radio range signals and voice tower messages. Special radio equipment required in the planes to contact Forest Service sets will be furnished, installed and maintained by the Forest Service at no expense to the contractor.

3. The airplanes must be equipped with standard functioning flight instruments including the following, but not restricted to: magnetic compass, air speed indicator, bank and turn indicator, rate of climb indicator, sensitive altimeter, tachometer, oil pressure gauge, oil temperature gauge, and fuel quantity gauge. Planes shall also be equipped with wheel brakes and adequate fire extinguishers.

Pilot qualifications will include the requirement that a currently valid FAA instrument rating is held. We are not planning on instrument flights, but providing a pilot capable of meeting an emergency situation such as a fast building storm or smoke condition that many cut off his visual contact while in flight.

We realize that many of the operators currently holding contracts do not have aircraft that meet these requirements. Also, a few pilots do not hold current instrument rating.

The intent of this letter is to give operators advance notice of our plans before they make extensive repairs on aircraft that they may plan to utilize on a Region One patrol plane contract. Pilots will also have ample time to qualify themselves by next season.

Sincerely yours,

E. R. De Silvia

Assistant Regional Forester

By Henry J. Viche

Missoula, Montana

FOR SALE: 1946 Cessna 120—All electric—Nav. & Landing lights—VHT 3 radio—Full Panel—570 hrs. SMOH on Chrome Eng.—2264 hrs. TT on A & E—Fabric good—Licensed to Nov. 1966—Price \$2400. Contact: Warren Thacker, 744 Terry Avenue, Billings, Mont. 59102. Phone 252-4215 after 5:00 P. M.

FOR SALE: 1946 Luscombe 8A—TT on A & E 921 hrs. Fresh license 11/1/65—Wings recovered 3 years—New windshield and tires—Wired for lights—Turn and Bank—24-hr. clock—Highly polished aluminum, red trim—Metal prop. 345 hrs. on engine S.T.O.H. with heavy pistons—Uses no oil and one of the cleanest Luscombes in the state for \$1,350. Contact Paul D. Marvel, Rexford, Mont. Phone 386-8223.

Letters to the Director

The following letter was received from well known Montana aviation flight instructor, Joe Lavallee of Glasgow. Joe attended the first MAC Flight Instructor Course in 1962 and instructed on the 1963 course. Joe is presently in Addis Ababa, Ethiopia.



Joe Lavallee shown with Bernie Geier during the Flight Instructors Course, 1962. (Bernie was Supervising Inspector at the Billings, FAA GADO at the time he instructed on the Course.)

Dear Chuck:

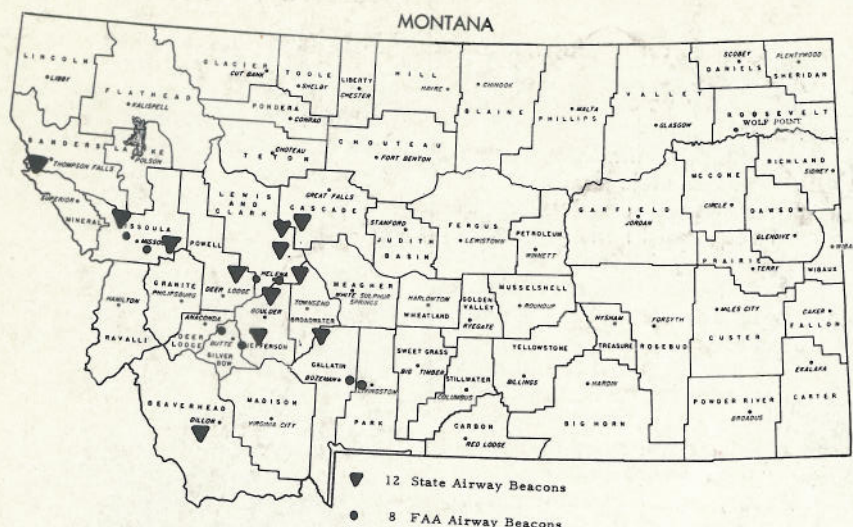
I've been with Ethiopian Airlines for 6½ months now and I like the work. The climate is ideal. Temperatures range from the 70's in the afternoon to the 50's at night. A jacket is required when the sun doesn't shine. Our rainy season is in June, July and August. The rest of the year the sky is cloudless—talk about a big sky country. Although we're only 480 miles north of the equator the elevation at Addis Ababa of 7625 feet makes for a pleasant climate.

My work consists of training Ethiopian aircrews. We start the Ethiopians from scratch. We start them in a Cub. Instrument training is given in a Cessna 180. Multi engine training in a twin beech and finally we check them out as first officers in a DC-3. When they complete the course, they have a commercial license, instrument rating, multi engine rating and DC-3 type rating. The course is programmed for 300 hours in 18 months.

Seasons greetings and best wishes.

Joe Lavallee

AIRWAY BEACON PROGRAM



Beginning the week of January 3, 1966, Montana's airway beacon program will begin its important function again along the more mountainous flyways routes of our state and at this time under the sponsorship of the Montana Aeronautics Commission. Of the 39 airway beacons operated by the Federal Aviation Agency, prior to 1965 here in the State of Montana and located along the various airway segments with the majority being in the mountainous regions, eight are to be maintained by the agency on specific mountain passes, namely the beacons at Bozeman, Bozeman Hill, Home Stake, Silver Bow, Montana City, McDonald Pass, University Mountain and Sherman Gulch.

Of the thirty-one remaining beacons, all were decommissioned by the Federal Aviation Agency on or before July 1, 1965. One at Deer Lodge, Montana, was turned over to the Airport Board for continued operation as an airport beacon.

Twelve of the remaining thirty beacons will be operated permanently by the Montana Aeronautics Commission as State Airway Beacons along the more mountainous flyways in the State of Montana. These permanent beacon sites, state operated, are as follows: Salt Lake, Alberton, Bonita, Avon, Spokane Hill, Stoney Point, Wolf Creek, Hardy, Boulder Pass, Whitetail Creek, Strawberry Butte and Canyon Resort.

The 18 remaining beacons will be dismantled during the spring of 1966 and made available to at least that

number of communities under the beacon relocation program developed by the Aeronautics Commission in February, 1965.

A great number of applications have already been received from interested communities here in the State of Montana who wish to secure one of these beacons under the state program for installation at their local airport. It appears, at this time, that there will be ample beacons to cover all of the requests received.

The beacon relocation program will involve disassembly at the present site, conversion of the light to qualify as an airport beacon and reinstallation at a permanent site upon the appropriate airports.

FAA PROPOSES LOWER AIRPORT WEATHER LIMITS FOR GENERAL AVIATION AIRCRAFT

The Federal Aviation Agency today proposed a new rule which would reduce airport landing weather minima for general aviation (non-airline) aircraft either weighing more than 12,500 pounds or of the small turbojet type. The new minima would be equal to the lowest weather conditions in which commercial transport planes currently may land at weather shrouded airports.

Designated "Category II" in the FAA's all-weather landing program, the new minima would reduce the

current runway visibility limit from 2600' RVR (runway visual range) to 1600' RVR initially, and eventually to 1200' RVR.

The category II proposal for general aviation operators is premised upon more stringent pilot qualification and proficiency requirements, approval of airplane equipment installation and rigid maintenance programs and on improved airport ground facilities.

Pilots would be required to obtain special authorization to make landings in Category II weather conditions based on experience and demonstrated skill. Each such authorization would be good for only six months and would apply only to the particular make and model of plane and equipment used in the flight tests.

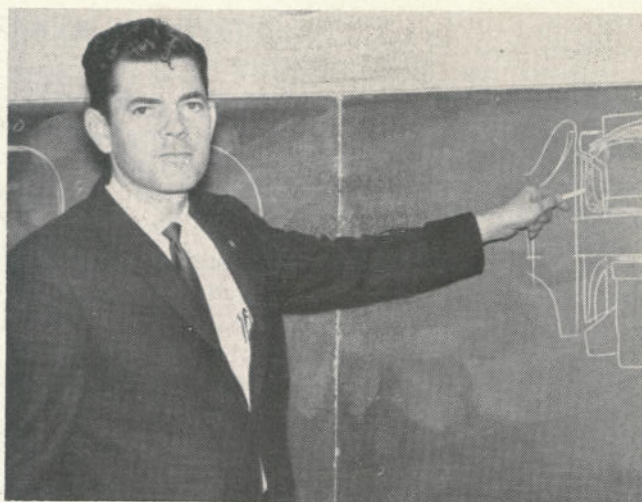
Approval of Category II airborne electronic and navigational equipment could be obtained by one of two methods. One would be to obtain approval of the equipment and installation at the time of the original certification of an aircraft or under a subsequent supplemental type certificate. The alternative method would be to obtain approval through an evaluation program designed to prove, during actual flight, the performance of equipment already installed in the plane. Using this method, the applicant would be required to make at least 50 approaches to landing down to the level of 100 feet above the airport surface using the Category II system. Ninety per cent of the approaches, some of which would be monitored by FAA inspectors, would have to be successful.

Under present regulations, most electronic and navigational equipment in general aviation aircraft are inspected only during 100-hour periodic or progressive checks. Since one of the key factors in Category II operations is accuracy and reliability of airborne equipment, the FAA proposal would assure optimum performance by requiring a comprehensive maintenance program.

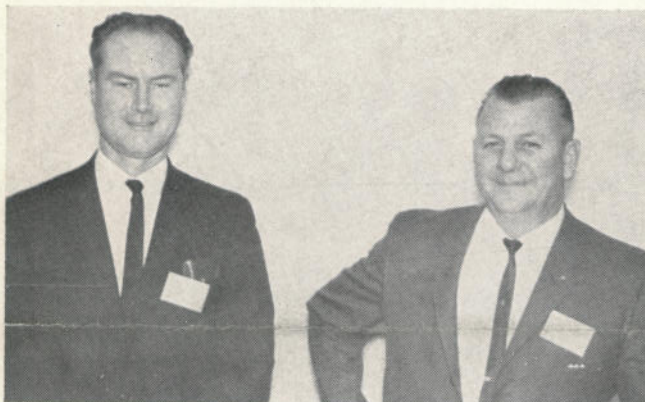
Possible inclusion of other types of general aviation aircraft in the Category II all-weather landing program also will be considered by FAA if comments received on the notice of proposed rule making on or before February 23, 1966, indicate an interest and a need.

1965 SEMINAR PARTICIPANTS

Montana Aeronautics Commission—Sponsor
 School of Aeronautics—Helena High School
 Federal Aviation Agency
 Beech Aircraft Corporation
 Cessna Aircraft Company
 Mooney Aircraft Company
 Piper Aircraft Company
 Combs Aircraft Company
 Component Manufacturers
 Electronic Consultant Services



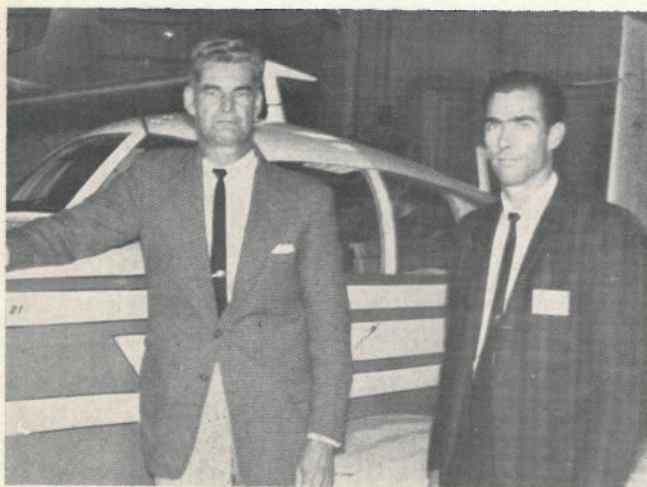
Ken E. Gardner of Cessna Aircraft Company, Wichita, Kansas.



Lee Mills of FAA GADO No. 9 Helena, and Donald Wright of FAA GADO No. 1 Billings. (Mr. Roman Mueller from FAA Minn. Area Office observed the Seminar for three days.)



R. T. Nielson and Dave Howe of Beech Aircraft Corp., Wichita, Kansas. (Unfortunately, due to illness, Dave Howe was called back to Wichita and Mr. Nielson completed Dave's presentation.)



Tom Vaught and John Vest of Mooney Aircraft Company, Kerrville, Texas. (Mr. Ron Schupp, Mooney District Representative for Montana, coordinated with MAC previous to the seminar and attended during the Mooney presentation.)



William Leuthold Jr. and Jesse Krall of Piper Aircraft Corp., Lockhaven, Penn.



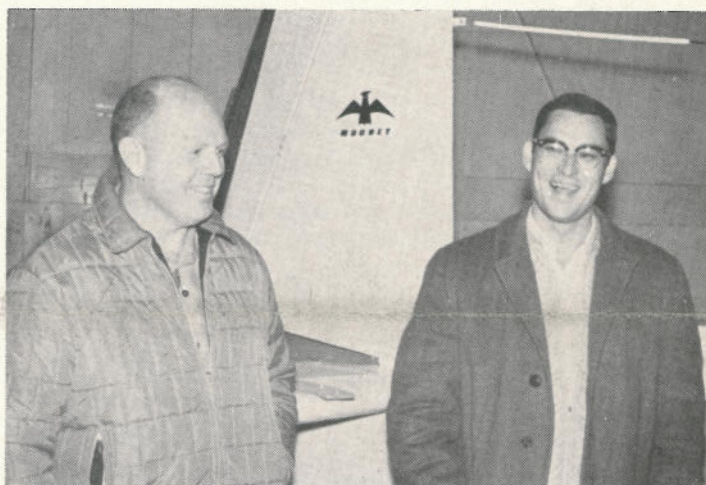
Ken W. Johnson of Bendix Corporation, South Bend, Indiana in an after class discussion with trainee Huebner.



Anthony "Tony" Orgain of Champion Spark Plug Company, Toledo, Ohio.



Ralph Persun, Jr. of Lycoming Division—Avco Corp., Williamsport, Penn.



Howard Robinson and Charles Edmonson of Brittain Industries Inc., Hawthorne, California.



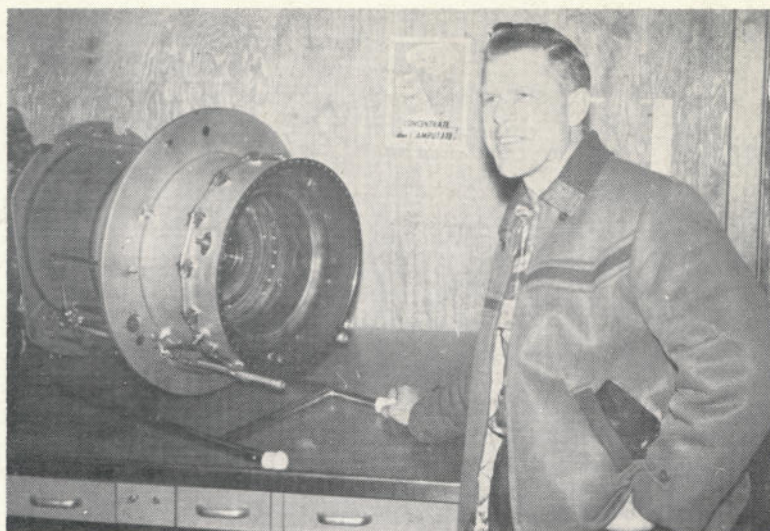
James "Mike" McEniry of Pacific Airmotive Corp., Burbank, Calif.



Paul T. Jenkins of Hoffman Taff Inc., Springfield, Mo.



Alan Eurich of Elcon, Billings, Montana.



Trainee—Roland Albright is shown with the PT6 Turbo prop engine displayed by Beech Aircraft.

An awards/appreciation banquet was held on Monday evening, December 6th, at the Placer Hotel in Helena. MAC Chairman, Walter Hope, presented the award certificates to the trainees. Course Manager, Jack Wilson, Safety and Education Officer for MAC, acted as Master of Ceremonies and presented the appreciation certificates to the attending representatives of the participating companies and agencies.

Mr. Charles A. Lynch, MAC Director, expressed the Commissions appreciation for the high quality of instruction presented and the use of the Helena High School facilities.

The success of the three seminars (held in '63, '64, '65) has been contributed to the enthusiastic interest of the mechanics and their desire to update themselves and the industry.



Mr. C. R. Anderson, Superintendent of Helena Public Schools is shown receiving Appreciation Certificate from Course Manager, Jack Wilson. The award was given to the school system for the cooperation and use of the facilities on the Helena Airport. (Seated in the background is MAC Chairman, Walter Hope.)



Mr. Wayne M. Brown, President of Combs Aircraft Company, Denver, Colorado, is shown accepting the appreciation award for the Company. Mr. Brown was accompanied from Denver by Dale Norton (Combs coordinator for the Seminar) and Mr. Win Ekland.

CONGRATULATIONS



CERTIFICATES ISSUED RECENTLY TO MONTANA FLYERS

STUDENTS

Junior, James J.—Billings
Bierwiler, David G.—Billings
Lefever, Ruth A.—Lewistown
Weibert, Ruben G.—Sheridan, Wyo.
Sharbono, Leslie N.—Glendive
Dorf, Robert E.—Princeton, N.J.
Hodges, Lee H.—Miles City
Hodges, Lewis R.—Miles City
Pellett, William R.—Miles City
Carpenter, Donald N.—Miles City
Brandt, Walter O.—Peerless
Wiens, LaVern H.—Wolf Point
Woods, William R.—Culbertson
Moline, Irvin L.—Circle
Giebel, Edmund J.—Miles City
Hanson, James A.—Melville
Wedel, Elvin J.—Hardin
Torske, Lynn N.—Crow Agency
Rose, William M.—Great Falls
Shiverick, Nathan C.—Billings
Keohane, Neil W.—Beach, N.D.
Beardsley, Albert R.—Glasgow
Tenney, Robert A.—Billings
Williams, Kent B.—Billings
Brendal, Harley E.—Billings
Reely, John Lowman—Missoula
Dunlap, Gerald C.—Great Falls
Henley, Boyce D.—Great Falls
Dawson, John E.—Belt
Gibbs, John Allen Jr.—Rocky River,
Ohio
Repplinger, Earl Lynn—Helena
Lenon, Franklyn Albert—Kalispell
Hanson, Kenneth Howard—Melville
Brown, Donald E.—Venetia, Pa.
Hollibaugh, Russell E.—Missoula
Doolittle, Paul Alfred—Missoula
Moore, Creighton King—Kalispell
Eck, Elaine R.—Anaconda
Erickson, Bruce Allen—Livingston
Kitchingman, Frank M.—Great Falls
Jensen, Harold—Chester
Wood, Harold F.—Whitefish
Brekke, Ivar Stevan—Reserve
Rouse, George William—Bigfork
Blewett, Raymond Glenn—Bozeman
Willett, Robert Vincent Jr.—Great
Falls
Vadnais, Bruce Nixon—Laurel
Hayden, Richard Allen—Great Falls
Wermeling, George A.—Great Falls
Monroe, John James—Kevin

Gnose, Donald D., Jr.—Missoula
Hoy, Robert Dean—Missoula
Jensik, Reed W.—Missoula
Miller, Virgil E.—Great Falls
Skaggs, Artemus—Missoula
Messelt, Annalu M.—Great Falls
Moore, Paul Russell—Pierre, S.Dak.
Patti, Pauline F.—Anaconda
Bluhm, Donald Gene—Livingston
Murphy, Elizabeth Ann—Butte
Stern, Gerald G.—Lincoln
DeMartin, Richard D.—Rudyard
Green, Rial Eugene—Kalispell
Bell, Jack R.—Great Falls
Borchers, Dean C.—Great Falls

PRIVATE

Lobdell, Donald—Wolf Point
Rogers, Charles W.—Lewistown
Pyle, Donald L.—Miles City
Combs, Donald W.—Lewistown
Anderson, Richard L.—Lewistown
Wang, Raymond A.—Plentywood
Feller, Albert J.—Miles City
Steppler, William A.—Great Falls
Richards, William H.—Conner
Loranger, Donald E. Jr.—Havre
Cerkovnik, Edward A.—Malta
Wood, Eddie Gene—Great Falls
Fowler, Clark W.—Helena
Stallard, Beri Eugene—Miles City
Petersen, Dee Dwain—Superior
Juel, Chester D.—Scobey
Davis, Bobby G.—Gillette, Wyo.
Clawson, Joseph—Billings
Lenhardt, John G.—Billings
Looney, Carroll W.—Gillette, Wyo.
Pace, Dean L.—Billings

ADVANCED OR SPECIALIZED

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Taylor, James C.—Bozeman
Luterbach, Donald H.—Kalispell
Wendland, Kenneth N.—Billings
Thatcher, Frank P.—Billings
Strunk, Ronald C.—Great Falls
Lundquist, Allan J.—Billings
Van Luchene, Richard A.—Billings
Bartlett, George E.—Billings
Tollefson, Gordon V.—Seattle
Knutson, George R.—Billings
Laehr, Arthur E.—Glasgow
Turner, Wayne Carl—Great Falls
Zugel, Lawrence M.—Helena
Birkholz, Paul W.—Helena
Smith, Edward Louis—Butte
Foster, Wallace E.—Whitefish
Keenan, Thomas M.—Great Falls

FOR SALE: Stinson Voyager 150—Radio
equipped—Top condition—\$950 down, \$95.45
monthly—Will trade for Piper PA-18, PA-12 or
PA-16. Contact: Ernest Tooke, Ekalaka, Mont.
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—500 hrs. SMOH. Annual due Oct. '66—Full
panel—VHT-3 Super-homer—Speed fairings—
Clean Airplane—Price \$6500. Contact: Mountain
Flyers, Inc., 1605 Middlesex, Missoula. Phone
549-9624.

BILLINGS FSS CHIEF RETIRES



George E. Corning

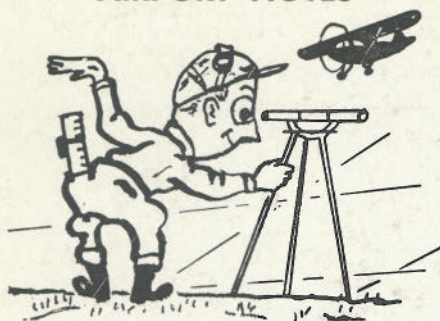
George E. Corning, Chief of the Billings FAA Flight Service Station, retired on December 30th after 37 years service with the Federal Government.

George began his aviation career in the United States Navy in July 1926. He worked as an Airway Keeper in the Lighthouse Service under the Department of Commerce in 1932—served in the same capacity at emergency landing fields in Wyoming, Nebraska, Oregon and Utah. He was Keeper in Charge of stations at Big Springs, Nebraska and Cascade Locks, Oregon. During 1935-36, he was Airway Radio Operator at Locomotive Springs, Utah. George transferred to Billings, Montana in March, 1936—in 1941 he became Station Chief at Idaho Falls—transferred to the overseas station at Everett, Washington. In 1942 George was transferred back to Billings as Station Chief and with the exception of a one year detail in the Regional Office at Seattle, he has remained at Billings since that time.

The Cornings will remain in Billings and plan to enjoy their home and fishing. George expressed his pleasure and appreciation to the Montana pilots and operators that he has worked for, and with. The Commission certainly extends many thanks for the long years of cooperation and support that George has given to aviation in our state, and wish him many happy years ahead.

HOBBY: An activity that gives you something to do while you're worrying.

AIRPORT NOTES



by James H. Monger
Assistant Director, Airports

GENERAL AVIATION UTILITY AIRPORTS. This fall the Airport Division has completed site investigations for new airports at the following locations: WINNETT, RUDYARD, HOBSON and STANFORD. The Stanford airport will be the same location as the old existing landing field. The land owners in each location are being contacted by this office and we are expecting a buy-sell agreement from the owners in the near future. If land negotiations can be cleared up this winter then engineering will be completed early next spring and all four new general aviation airports can be completed in the summer of 1966. The county in each of these four locations has agreed to sponsor the airport project under the general aviation utility program of the Montana Aeronautics Commission.

BROADUS. The general aviation airport at Broadus is now under construction. This airport is being built by contractor, Stephen Kenney of Hardin. The contractor was unable to start construction until November 15, therefore, the weather will now determine whether or not the airport can be completed this winter. This new airport is sponsored by Powder River County and is located one half mile south of the town of Broadus.

WEST YELLOWSTONE. The Yellowstone airport near the town of West Yellowstone is now NOTAMED for winter operation. The airport is open now to ski equipped aircraft only and pilots will use it at their own discretion. The field does not have lights or any other facilities available winter months. There is a pay phone on the field.

MONTANA AIRPORT STATISTICS. Number of publicly owned public use airports in Montana—109.

Air carrier (airline) airports in Montana—15.

Airports with runway or boundary lights—54.

Paved airports—42.

Flying Farmer & Rancher Airports open for public use—154.

Flying Farmer & Rancher Airports private use only—approximately 150.

Loan Status.

The following is a recapitulation of the Montana Aeronautics Commission ten year non interest loan status since the loan program was established in 1957.

Completed loans repaid (in full) total \$88,879.

Fiscal year 1965 total loan disbursement \$73,080.

Active airport improvement loans that were disbursed prior to fiscal year '65—\$798,235.68.

Loans approved and not yet disbursed—\$648,078.90 (most of these loans will be disbursed during fiscal year 1966 on projects that will be under construction next summer).

Total loans approved since Montana Aeronautics Commission loan program started in 1957 amounts to \$1,608,273.58.

The Montana Aeronautics Commission has been involved in 135 projects since the airport development program started.

General Aviation Utility Airports.

At the end of the 1965 fiscal year which was June 30, 1965 the Montana Aeronautics Commission had completed eight general aviation utility airports. These eight airport projects cost the Aeronautics Commission a total of \$175,219.60; in each case the county sponsored the project and repaid this office a portion of the total cost. The sponsor's share is the equivalent of 2½ mills based on the local high school district value in which the airport is located. A \$10,000 repayment is the maximum any county will have to pay on a GAU airport. The total repayment is based on a ¼ of a mill per year over a ten year period. The average cost of these eight airports is \$21,902.45. This includes the cost of the land, the engineering fee, administrative costs and cost of construction. The average repayment per project from the county is \$588.50 a year or a total per project of \$5,884.95. This means, that on the average for every general aviation utility airport built in Montana the Aeronautics Commission grants the county \$16,017.50 and

the county pays \$5,884.95 over their ten year repayment period. In other words when a county sponsors a GAU airport through the State Aeronautics Commission Airport Program, they will after a ten year period, repay an average of approximately 27% of the total cost of the airport. The remainder becomes a grant on part of the state.

YOU'LL NEVER BUY ANY ANY CHEAPER

The grand man of aviation, William T. Piper, Sr., spoke to guests of the Longhorn Aviation Club in Austin last weekend. He made the airport need even more crystal clear.

Mr. Piper said, in essence, we'll never be able to buy real estate for any less money. Airports are insurance for survival of the aircraft industry. The aircraft industry means survival of fast, safe transportation. Business is better because of aviation.

His point was well taken by the audience. Some squirmed around in their comfortable chairs, knowing of airport land which they could have and should have purchased for airport use years ago.

Ken Smith, Aero Commander, spoke to a forum in Palm Springs. He said aviation in the '40's and '50's seemed to be a business of big planes doing big jobs—an idea left over from WWII air power.

It remained for the '60's to establish the real power of transportation comes from big men, doing big jobs, Mr. Smith said.

Put these two together. What do you have?

Stark realism. If the aviation industry is to continue serving mankind, in all facets, there must be landing areas for the planes, STOL, helicopters or others.

True, some can land on a dime, some can land on buildings, but airports are every community's need.

Reports are that the aviation fleet (expanding every year) has about 9,000 airports. Most of these are privately owned. Not a bad state of affairs, until one remembers that real estate developers offer more money to the land owner.

Conclusion: help your airport commission, or board, your State Aviation Commission. See to it they are not tempted or coerced to do away with your airport. Get an air-

port if you don't have one; get more if you do.

The Utility Airplane Council, concerned with this problem, has developed a "Grow Kit." It will help you with your airport problem, should you have one.

Land is coveted. Population is exploding. Real estate is not being made, not on this earth.

You'll never get real estate any cheaper. Be concerned NOW.

Reprinted from the Cross Country News. (November 25, 1965).

COMBS-PICKENS MOVES INTO NEW BUILDING

In November of 1965, two young men, familiar to aviation minded Montanans, purchased Montana Aircraft Company in Billings and have recently moved into their brand new building on Logan Field. They will operate under the operation name—"Combs-Pickens."

H. B. Terry Combs, Jr.—is the son of H. B. Combs, owner of Combs Aircraft in Denver, Colorado. He received his pilots license as soon as he became of legal age. Terry graduated from Yale University then joined his father at Combs Aircraft and worked in every phase of the aircraft business. At the time Terry left Denver he was Sales Manager of the Small Beech Aircraft Sales Department.

James Pickens, Jr.—is a native of West Yellowstone, Montana—graduated from Gallatin County High School in Bozeman. Jim completed his CPT training at Morrison Flying Service in Helena—joined the Navy in 1942 and graduated as a pilot in the U. S. Marine Corps. Jim served in the Night Fighter Squadron in the Pacific in World War II and was recalled during the Korean War.

Jim returned to his home state as a sales representative for Combs Aircraft in 1958—worked for Gillis Aviation for a 2 year period until he purchased the Montana Aircraft Company with Terry in November, '65.

A Word from Terry and Jim: "We feel that with our combination of experience we will be able to offer the type of operation that Montana has needed and deserved in the Beech Craft line. We will appreciate greatly any criticism or suggestion that anyone can offer to help us accomplish this."



New home of Combs-Pickens

NOTICES OF PROPOSED RULE MAKING TO PART 71

Designation of Federal Airways, Controlled Airspace and Reporting Points.

DESIGNATION OF TRANSITION AREA

Part 71 of the Federal Aviation Regulations is amended, effective 0001 EST, March 3, 1966, as herein-after set forth:

Livingston, Montana

That airspace extending upward from 1200 feet above the surface within 5 miles NE and 8 miles SW of the Livingston VORTAC 150° and 330° radials, extending from 7 miles SE to 14 miles NW of the VORTAC; and within a 12 mile radius of the Livingston VORTAC, extending from the 261 VORTAC radial clockwise to the 085° VORTAC radial.

(Airspace Docket No. 65-CE-128).

ALTERATIONS OF VOR FEDERAL AIRWAYS

The Federal Aviation Agency is considering amendments to Part 71 of the Federal Aviation Regulations that would alter the floors of segments of V-6, 19, 26, 86, 89, 100, 118, 138, 169, 207 and 524 as follows:

V-19 from Cheyenne, Wyo., 1200 feet AGL to Casper, Wyo., including an E alternate 1200 AGL from Cheyenne to Casper via the INT of Cheyenne 002° and Douglas, Wyo., 152° True radials and Douglas, and from

Sheridan, Wyo., 21 miles 1200 feet AGL, 35 mi. 7500 feet above mean sea level (MSL), 1200 feet AGL to Billings, Mont., including an E alternate from Sheridan 21 mi. 1200 feet AGL, 38 mi. 7500 feet, MSL, 1200 feet AGL to Billings.

V-86 from Billings, Mont., 32 mi. 1200 feet AGL, 35 mi. 7500 feet MSL, 1200 feet AGL to 20 mi., E of Sheridan, Wyo., 45 mi. 7000 feet MSL, 72 mi. 8000 feet MSL, 1200 feet AGL to Rapid City, S. Dak.

Interested persons may participate in the proposed rule making by submitting such written data, views, or arguments as they may desire. Communications should identify the airspace docket number and be submitted in triplicate to the Director, Western Region, Attention: Chief, Air Traffic Division, Federal Aviation Agency, 5651 West Manchester Avenue, P. O. Box 90007, Airport Station, Los Angeles, Calif. 90009. All communications received within 45 days after publication of this notice in the Federal Register will be considered before action is taken on the proposed amendment. The proposal contained in this notice may be changed in the light of comments received.

The 1200 AGL floors are required for climb to minimum enroute altitudes, en route altitude changes and aeronautical chart legibility. These actions will neither affect present air traffic procedures nor minimum enroute altitudes.

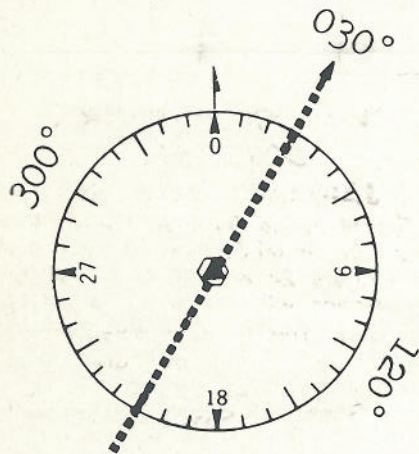
(Airspace Docket No. 65-WE-43).

FEDERAL AVIATION AGENCY INSTRUMENT PILOT EXAM-O-GRAM NO. 14 VOR QUIZ

A thorough understanding of all information provided by the VOR receiver will be helpful in taking the Instrument Pilot Written Examination, and will save pilots time, work, and worry in flight. The questions and explanations that follow concern the basic problems and a few of the refinements of VOR receiver operation. Awareness of the points brought out in these explanations will help you obtain maximum utilization of this fine aid to air navigation.

1. Does the CDI (Course Deviation Indicator) relate the selected course and the aircraft heading?

No, the CDI relates selected course and aircraft **location**. The illustration below represents a VOR station and the surrounding area. The course selector setting is always represented by an imaginary line (in this case, 030°) extended through the station; the aircraft is located on, or to either side of this line.



The problem of **interpreting** the CDI may be confusing if aircraft heading and selected course are not the same. However, the true relationship is readily seen by mentally (or actually) turning the aircraft to the heading shown on the course selector.

2. How can pilots avoid "reverse sensing?"

By keeping the course selector setting and the aircraft heading in approximate agreement. Only by this procedure will the CDI be deflected in the direction of the

selected course. If the course selector and air craft heading are approximately **opposite**, it is as though the pilot has done an "about fact," and what was to his right is now to his left. He must now read the CDI in "reverse."

NOTE. When flying an ILS localizer course, it is not always possible to avoid "reverse sensing." When the VOR receiver is tuned to an ILS frequency, the course selector becomes useless, and the CDI automatically senses to the inbound front course bearing. When the aircraft is headed in the **opposite** direction of the inbound front course bearing, the pilots must read the CDI in "reverse."

3. In the diagram above, assume that the aircraft is located somewhere along the 120°-300° line, which is perpendicular to the course selector setting. Would the receiver indicate TO or FROM?

Neither, there can be no TO-FROM resolution along a line through the station, perpendicular to the course selector setting. The area of no reliable TO-FROM indication may extend 20° on each side (40° total) of this perpendicular line. The indication could be: a red flag, OFF, a partial or intermittent TO-FROM, or no indication at all.

4. What angular deviation from a VOR course is represented by 1/2 scale deflection of the CDI?

5°—The CDI is normally calibrated to indicate a full scale right or left deflection (from center) at 10° from the selected course. This information is useful when approaching an intersection or intercepting a radial. The needle will start movement toward the center at a position 10° from the radial set on the course selector. The rate of movement can be interpreted as an indication of distance from the station, and is a clue to the lead required for an interception turn.

If approximate distance to the VOR station is known, this angular sensitivity provides information on approximate distance off course. Based on the formula—1 degree equals 1 mile in 60 miles—an aircraft which is 30 miles out, and shows a 1/2 scale (5°) CDI needle deflection, would be 2 1/2 miles from course centerline.

NOTE: Remember that the CDI is 4 times as sensitive when used in ILS localizer function, and the needle will move 4 times as fast, requiring

the pilot to plan and act accordingly. A one-half scale deflection of the CDI represents approximately 1 1/4° from the localizer centerline.

5. What degree of accuracy can be expected in VOR navigation?

This depends on pilot technique and systems accuracy. The following table shows an example of accumulated system errors, and the approximate effect at 30 miles distance from the station:

VOR Radial error1° = .5 mi.
Airborne

receiver error4° = 2.0 mi.

5° = 2.5 mi.
off course

(NOTE: In many cases system errors will have a canceling effect.)

Any error in pilot technique could be added to the **total** of the above system errors. The need for proper adjustment of the VOR receiver, and precise navigation by the pilot, is evident.



CALENDAR

January 12, Helena—Montana Aeronautics Commission Monthly Meeting.

January 10, 11, 12, Ohio State University, Columbus, Ohio—The National Aviation Trades Association, the AOPA Foundation, Inc., and Link Foundation in cooperation with the Federal Aviation Agency are sponsoring a special flight instructor refresher course.

January 14-15, Denver, Colorado—Flying Farmer Days—Stock Show and Banquet Fly-In Columbine Airport. Transportation to Motel Essex House. For Reservations Write: Grace Longbrook. 160 S. Holland, Lakewood, Colorado.

January 15, Havre 99's Meeting. Alternate airport (rather than date) at Great Falls.

January 24 & 25, Bozeman—Montana Aviation Trades Association Convention. Registration will be at the Baxter Hotel.

March 4 & 5, Swift Current, Saskatchewan—Flying Farmers Bonspiel.

April 29, 30, May 1, Livingston—MPA Annual Convention.

PILOTS: DO YOU HAVE THIS WEATHER LOG?

The log, consisting of a "Key to Aviation Weather" page and 50 detachable sheets, was devised for your convenience. You may copy weather reports while checking the forecast by telephone and use for weather broadcast comparison, enroute. Request Copies: Pilots Weather Log — Montana Aeronautics Commission — P. O. Box 1698, Helena.

KEY TO AVIATION WEATHER REPORTS.....

[illegible]

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MATA CONVENTION — BOZEMAN

JANUARY 24 & 25

The Montana Aviation Trades Association annual Convention date will be January 24 and 25 in Bozeman. Registration will be held at the Baxter Hotel. The Monday session will present a full day of Agricultural School and will be held at the College. General Business Session will be on Tuesday at the Baxter Hotel. Dave Stradley, Convention Chairman.

MEMBERS: This is an important meeting—See you there.

FOR SALE: Four Piper PA-18 airplanes. 150 h.p. engines—total time between 150 and 1500 hrs. Priced for immediate sale. Will take trades. Contact Walter Huffman, Big Timber.

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